6. Helicopter Landing

Program Name: Helicopter.java **Input File: helicopter.dat**

The U.S. Government has recently purchased a large fleet of helicopters. In each city, they need a downtown location to land as many helicopters as possible. However, downtown is already full of buildings. Write a program to help the government find an optimal landing location for each city.

The city can be represented as a two-dimensional grid of numbers, where the number in cell (i, j) is the height of the building at (i, j). Because of how the government's helicopters operate, the landing location must be an axis-aligned rectangle. Furthermore, the heights of all buildings within the rectangle must be the same. The government is interested in the largest such rectangle by area. If multiple potential landing rectangles have the same area, print the one with the greatest height above the city.

Input

The first line of input contains n, the number of cities to examine. For each city, the first line contains 2 integers, w and l, where w is the width of the city's downtown, and l is the length. For the purposes of this problem, let width be distance along the x-axis and length be distance along the y-axis. The next l lines each has w space-separated integers, which are the heights of buildings on a city street.

Output

For each downtown area, give the government a briefing of the landing location, using the following form:

```
Area: a square blocks
Start location: r c
Width: w
Length: l
```

Where a, r, c, w, and l are replaced with the proper values. r is the 0-indexed row number and c is the 0-indexed column number of the top left corner of the solution rectangle. Print a blank line between briefings.

Constraints

```
1 <= n <= 10
1 <= w, l < 100
0 <= (building height) < 10000
```

Example Input File

```
2
3 2
1 3 3
1 3 3
3 3
9 10 9
10 11 10
9 10 9
```

Example Output to Screen

```
Area: 4 square blocks
Start location: 0 1
Width: 2
Length: 2

Area: 1 square blocks
Start location: 1 1
Width: 1
Length: 1
```